

METHOD AND APPARATUS FOR FLEXIBLY REGULATING INTERNAL
COMBUSTION ENGINE VALVE FLOW

ABSTRACT

In an internal combustion engine, a fixed engine valve timing profile may be combined with a variable profile produced by a valve actuator coupled to one or more engine valves. By controlling one or more engine valves independent of the fixed timing profile, engine gas flow may be more flexibly regulated, thereby optimizing engine performance under a wide variety of operating conditions. In one embodiment, enhanced internal exhaust gas recirculation (EGR) may be achieved. A turbocharger may be used, along with the control provided by the valve actuator, to further control engine gas flow. In this manner, the present invention facilitates greater control of engine gas flow with minimal cost and complexity.